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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------------|------------------|
| 10/767,641 | 01/29/2004 | Gernot Schmicrer | DFS-170-A | 5404 |
| 22825 | 7590 | 11/30/2005 | EXAMINER OKEZIE, ESTHER O | |
| WILLIAM M HANLON, JR YOUNG & BASILE, PC 3001 WEST BIG BEAVER ROAD SUITE 624 TROY, MI 48084-3107 | | | ART UNIT 3652 | PAPER NUMBER |

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/767,641 | Applicant(s) SCHMIERER ET AL. | |
| | Examiner Esther O. Okezie | Art Unit 3652 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 22-24 is/are rejected.
- 7) ☒ Claim(s) 19-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The amendment filed on 9/15/05 and the remarks presented therewith have carefully considered. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1,2,5,6,11-17,24 are rejected under 35 U.S.C. 102(b) as being anticipated by Boyd et al.

1. Re claim 1, Boyd et al discloses a vacuum gripper (fig 33A) for suctioning workpieces comprising: a flexible suction body (192); a side of the suction body facing the workpiece including a sealing lip (200) bounding a vacuum chamber (194) and the vacuum chamber is connected by air flow to a vacuum connection; the suction body having a contact surface (198) abutting the workpiece with prevailing vacuum in the vacuum chamber and a microstructure (199; fig 33C) projecting from the contact surface and formed of one of rod, louver, and pin-shaped elements (col. 19, lines 1-11). The elements having a free end intersected by a longitudinal axis of the elements, the

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free end being displaced away from the contact surface and the longitudinal axis oriented so as to intersect the contact surface (fig 33B; col. 19, lines 1-15).

It is noted that the microstructure of elements are meant only to be generally small and not microscopic in that the disclosure specifies the elements are to be between 0.1 and 1mm (10^{-3} meters) in length while a microscopic length would be 10^{-6} meters.

2. Re claim 2, the elements are part of a microstructure (fig 33C).
3. Re claim 5, the elements are disposed as one piece on the suction body (fig 33C)
4. Re claim 6, the elements are disposed on a carrier to be attached to the vacuum gripper (the pattern of bumps are disposed on the surface 198)
5. Re claim 11, wherein the elements have a rounded end (col. 19, lines 1-11).
6. Re claim 12, wherein the elements have a circular cross section (col. 19, lines 1-11).
7. Re claim 13, a blade plane for element with a flat cross section extends in the circumferential direction of the vacuum gripper (col. 19, lines 1-11).
8. Re claim 14, the elements project perpendicularly from the contact surface (fig. 33C).
9. Re claim 15, the sealing lip (200) is free of the elements (fig 33C).
10. Re claim 16, the elements extend over 70 to 95 percent of its radius, starting from the center of the vacuum gripper (fig. 33C).
11. Re claim 17, the length of the bumps is approximately 1mm (col. 19, line 5).

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12. Re claim 24, the length of the bumps is approximately 1mm (col. 19, line 5).

13. Claim 18 rejected under 35 U.S.C. 102(b) as being anticipated by Reimann. Reimann discloses a method of producing a suction gripper having a flexible suction body (elastomeric insert 3) that includes a contact surface (5), the microstructure (9,10,11) formed of one of rod, louver, and pin-shaped elements, the method comprising the step of injection molding the suction body (col. 2, lines 31-40).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. Claims 3,4,7-10,22,23 rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al.

15. Re claims 3,4,8 while the suction cup is made from a soft, flexible elastomeric material (col. 18, lines 57-60), Boyd does not disclose the material from which the bumps are formed. The bumps are disclosed to create a reliable friction grip on the heart under vacuum without causing damage to the heart tissue and the soft flexible nature of suction cup manipulator (192) is disclosed to allow it to be folded or collapsed as it is pushed through an access port (col. 19, lines 23-29). This would suggest the bumps also be flexible, not hard, to prevent damage during contact to with the heart tissue and collapse and folding of the entire suction cup. Therefore it would have been obvious to one of ordinary skill in the art to form the bumps from a soft, flexible, material

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such as plastic, rubber or any other elastomeric material in order to prevent damage during contact to with the heart tissue and permit collapse and folding of the entire suction cup.

16. Re claim 7, Boyd et al discloses an alternate embodiment including a high friction material cast on the surface of the suction cup serving as a film or layer of fabric (col. 19, lines 13-19).

17. Re claim 9,10,22,23, Boyd et al discloses the height of the bumps as 1mm and the geometry and the pattern of the bumps creates a reliable grip on the surface of the heart tissue (col. 19, lines 1-12). Boyd et al does not disclose the thickness of the bumps. It would have been obvious to one of ordinary skill in the art to construct the bumps to be thick enough to provide a "reliable, flexible, friction grip" but slender enough to prevent damaging the heart tissue.

Allowable Subject Matter

Claims 19-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection as described above.

Applicant has argued that Reimann US 6,203,083 does not disclose a flexible suction body because Reimann discloses reinforcing the body with glass fibers. In response Reimann clearly discloses an "elastomeric insert 3 formed as a single piece comprising an annular bearing member 8 which surrounds the suction opening." The elastomeric insert 3 is clearly the base on which the microstructure or ribs (9,10,11) are placed. The elastomeric insert 3, elastomeric bearing members 8, and elastomeric ribs (9,10,11) are formed by injection molding (col. 2, lines 31-40). The fact that Reimann discloses "the adhesion properties are increased if the base body is reinforced for example with glass fiber" is a suggestion made in the summary of the invention and does not mitigate the fact that the suction body and elements are formed of elastomeric material defined by Merriam Webster's Online Dictionary as any of various flexible or elastic substances resembling rubber.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Esther O. Okezie whose telephone number is (571) 272-8108. The examiner can normally be reached on Mon-Thurs 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen D. Lillis can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EOO 11/26/05


DEAN J. KRAMER
PRIMARY EXAMINER 11/28/05